

REMARKS

Claims 1, 2 and 21 are all the claims pending in the application. Claims 1, 2, and 21 presently stand rejected.

Information Disclosure Statement

The Examiner has indicated that the Information Disclosure Statement filed on January 17, 2002 fails to comply with the provisions of 37 C.F.R. § 1.97, 1.98 and MPEP § 609 because a list of the references was not provided. The Examiner has requested that Applicant resubmit the list and that the date of resubmitting missing elements will be the date of submission for purposes of determining compliance.

In order to ensure that the IDS originally filed on January 17, 2002 is properly considered by the Examiner, Applicant re-submits herewith the IDS papers accordingly.

Drawing Figures

Applicant thanks the Examiner for indicating acceptance of the drawing figures filed on March 15, 2007.

§ 112 Rejection

Claims 1, 2 and 21 are rejected under 35 U.S.C. § 112, second paragraph. Applicant amends claim 1 to remove any ambiguities.

Regarding claim 21, the Examiner asserts that the third embodiment does not support the limitation that the second end of the pigtail is connected in an area within the width of the brush. However, the third embodiment is described as having a structure which “is substantially the same as that in Embodiment 1...[except] it is different from that of Embodiment 1 at a point that the pigtail 6a is introduced from a backside of the brush 6...”. See page 11, lines 2-6. The third

embodiment is the same as the first embodiment except for the location of the first end of the pigtail, and thus, it is inherent that the second end of the pigtail is disposed in the same manner as in the first embodiment, i.e., within a width of the brush. Thus, Applicants respectfully submit that claim 21 is definite.

§ 103 Rejections

Claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wakao et al. (5,785,145) and Hockaday (6,246,144).

Claims 21 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Wakao et al. (5,785,145) and Southall (5,159,222).

Analysis

Claim 1

As noted by the Examiner Wakao fails to disclose:

- The pigtail extending from an introducing portion at an upper side of the brush;
- A terminal plate connected to a second end of the pigtail in an area within $\pm 45^\circ$ from the introducing portion toward the radial direction of the brush holder toward an outside of the brush holder; and
- Wherein a column extends from the terminal plate and connects with the second end of the pigtail.

To supplement these deficiencies, the Examiner turns to Hockaday. However, Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to modify Wakao for the reasons outlined in the Office Action.

The Office Action indicates that the motivation arises from the teaching of Hockaday “to provide a brush assembly structure sufficiently rigid to withstand the expansive force of the spring without significant deformation.” (Page 6, last paragraph.)

Actually, Hockaday teaches “an assembly in which the lead wire is sufficiently rigid to withstand the expansive force of a spring without significant deformation.” (Col. 2, lines 59-61.) By forming the lead wires out of rigid material, they can withstand the expansive force of the springs 22A, 22B. That is, the structure of the **lead wires** 26A, 26B provide the rigid structure to the Hockaday device; the structure of the **shunts** 34A, 34B is not relevant to providing rigidity to the assembly. In fact, the placement of the shunts 34A on the brush 18A, 18B as “protruding either from edge 46B of brush 18B or from a face of the brush other than edge 42B” indicate that the placement of the shunt is not important as long as it is not on the edge 42B of the brush, and moreover, this placement is **not related to the rigid structure** which prevents significant deformation (Col. 3, lines 21-27.)

In the Office Action (pages 9-10), it is asserted that the pigtail 34 must extend from the upper portion of the brush to provide support for the lead wire terminal/column structure 30/66. However, this analysis is inaccurate and there is no support for this assertion in Hockaday. It is the structure of the lead wire 26A which provides support to the spring; there is no indication that the extension of the shunt provides any rigidity at all to the structure (the shunts are described as “flexible” (col. 4, line 13)). In fact, as noted above the placement of the shunts is not just unimportant, but the shunts may be omitted altogether if the springs are made of conductive material (col. 4, lines 17-20).

Therefore, the alleged motivation provided by Hockaday for modifying Wakao would not have motivated one of ordinary skill in the art to reconstruct the placement of the alleged pigtail 37. The placement of the wire 37 with respect to the circuit board is specifically provided in the arrangement of Wakao (a “featured construction” col. 4, lines 16-24) in order to make a smaller device in which the lead wire 37 has a reduced length and the board 22 is fixed directly to the casing 23. Moreover, the brush casing 33 houses the brush 35 thus already providing a rigid structure to the spring. Thus, one would not have been motivated to modify Wakao to lose its featured construction in favor of a rigid structure which is already provided therein.

In view of the foregoing, there is no motivation for altering the structure in Wakao so as to move the lead wire 37 to extend from the upper surface of the brush, or to connect with the terminal plate toward the radial direction of the brush holder toward an outside of the brush holder. The location of the lead wire provides no rigidity to the structure in Hockaday, whereas the brush casing 33 of Wakao provides rigidity to its structure. Thus, one would not have reconciled these references to arrive at the claimed invention.

Thus, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claim 1.

Claim 2

Claim 2 is patentable for at least the same reasons as claim 1 by virtue of its dependency therefrom.

Claim 21

Applicants respectfully submit that the alleged motivation for modifying Wakao is unsupported. The Office Action asserts that it would have been obvious to modify the pigtail

and circuit board structure in Wakao in view of Southall in order to facilitate removal and replacement of the snap-in brush cartridges. However, the placement of the pigtail and terminal are not disclosed as being related to this alleged motivation. Therefore, one of ordinary skill in the art would not have been motivated to make the alleged structural modifications to Wakao in order to facilitate removal and replacement of the brushes; at most, one would have modified the structure of the motor casing 23 and holder 33 and the manner in which these are attached to the rest of the housing. However, there is no motivation for moving the wire 37 from the bottom of the brush or adding a terminal to the holder so that the second end of the wire is connected thereto in the structural arrangement recited in claim 21.

With respect to the Examiner's comments on pages 10-11 of the Office Action, it is noted that there is no support for asserting that the radial orientation of the pigtail connection improves removal and replacement of the snap-in brush cartridges 15. Since the cartridges are all-inclusive, that is, they include the brush, pigtail and spring, there is **no support that the structure within the cartridge** facilitates removal and replacement of the cartridges. Rather, this reference teaches that the brush holder plate assembly, including the rails 12, plate 11 and clips 13 provide the capability of the easy removal and replacement feature. The structure within the cartridge is not relevant to the ease in which the cartridge can be removed and replaced.

In summary, while one may have been motivated to modify the casing in Wakao, there is simply no reason one would have moved the wire and added a terminal to the structure in Wakao in order to facilitate removal and replacement of the brush.

In view of the foregoing, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claim 21.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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